Dear FCC:

I'm writing regarding the interference caused by the Lightsquare proposed use of frequency that was allocated for satellite use. From a technical point it is clear it caused extensive interference. I'm concerned about several impacts on search and rescue (SAR). My company performs Search and Rescue research, publications, and training. We also publish a monthly newsletter on Search and rescue. We have worked for the USCG, NASA, NPS, FEMA, and several state agencies. In addition, I have written GPS training courses for FEMA. Even in "remote wilderness" areas interference would be a major problem. The search and rescue community is poor, often largely unfunded, often largely performed by volunteers. It has often required Search Teams countless hours of fundraising to afford even simple GPS receivers. It represents a major investment. If these need to be replaced it should be over a 10-12 year cycle. The WAAS signal is critical to giving sufficient accuracy to locate clues that teams often have to come back to at a latter time. In addition, in conducting research the accuracy needed to be at the meter level. This is often done using high-end equipment borrowed for government agencies. The other major use of GPS comes from GIS data that was collected using high end equipment. Updating this data would no longer be possible (well I guess you could use survey equipment but that is too expensive and simply would not happen).

I have also seen a plethora of new equipment that uses GPS come on the market to assist in the alert (when going outside a geo-fence) and location of wanderers who have dementia (Alzheimer's disease), autism, and other cognitive disorders. The greatest technical challenge with these devices is getting a GPS signal inside or in urban canyons. Sensitivity is everything. New chips are always coming on the market with better and better sensitivity. These developments and increasing capabilities would cease to work. I'm even more concerned about what developments would be killed off 5-10 years down the line. Cell phone location technology based upon TDOA, AOA, TOA, EOTD or other network based technologies viewed from the search and rescue perspective have not been successful or useful.

Another new and exciting market has been SEND devices. Satellite Emergency Notification Devices. They have already saved more lives than PLB devices. They are completely dependent upon an accurate GPS location based coordinate. While the likelihood that a Lightsquare base station is nearby, I'm also concerned about mobile devices carried by the person or someone in the party that is pinging out a signal. I'm not aware of any testing along these lines. I'm also concerned about a mobile device and PLB, ELT signals. All of the better devices use a GPS signal to provide the best location. Many of these activations can and will acquire around base stations. Once again, someone in the party will always try their cell phone first and if unable to obtain a signal the device will continue to ping out a signal that causes interference.

The effects on commercial aviation are well known. We are all told to turn off cell phones prior to take-off. However, the FAA knows current cell phone technology causes little to no interference. However, in the event new cell phones can actually block or interfere with planes navigation, it may become necessary to actually not allow cell

phones onto any commercial aircraft. This would become a major burden for the frequent air traveler.

All of this should be tested. If Lightsquare claims they will use a different frequency, then all of the test should be repeated with the actual signal strength they will actually use. Testing with actual cell phones should be carried out as well. This is a waiver and the burden needs to be on Lightsquare to fully and completely test all of its equipment and to not cause any interference.

Thank You

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